PATENT CLAIMS

1. A device which, via at least one surface or one portion, is arranged to be applied to bone and/or tissue in the human body, for example jaw bone, and which, at the surface or portion, is provided with an agent which stimulates bone growth, preferably HA (hydroxyapatite), where at least one surface-bearing part or the portion comprises or consists of compressed bone-compatible and/or tissue-compatible material, preferably titanium powder, characterized in that the powder material and the bone-growth-stimulating agent form a composite material which is obtained by means of impact compaction and, if appropriate, sintering.

2. The device as claimed in patent claim 1, characterized in that the bone-growth-stimulating/HA agent is arranged completely or partially in or at the actual surface layer and can thus be exposed to the bone and/or tissue in question.

3. The device as claimed in patent claim 1 or 2, characterized in that the bone-growth-stimulating agent is in the form of particulate fractions with sizes in the range of 90-120 µm.

4. The device as claimed in patent claim 1, 2 or 3, characterized in that titanium powder with considerable purity, preferably a purity of 99.99%, and a relatively small particle size (Wah Chang HP (or CP) -325 Mesh T080014(010607)) constitutes the base for the composite structure.

5. The device as claimed in any of the preceding claims, characterized in that titanium powder in a quantity of ca. 90-98%, preferably ca. 95%, and HA powder in a quantity of 2-10%, preferably 5%, form

the starting material for the material compacted by impaction and possible sintering.

6. A method for producing a device, for example an implant, which, via at least one surface or one portion, is arranged to be applied to bone and/or tissue in the human body, for example jaw bone, and which, at the surface or portion, is provided with an agent which stimulates bone growth, preferably HA, where at least one surface-bearing part or the portion is made of compressed bone-compatible and/or tissue-compatible material, preferably titanium powder, characterized by the following steps

a) mixing together the bone-compatible and/or tissue-compatible powder material and said agent which is in powder form,

b) applying the mixture in a mold cavity belonging to a mold applied in a machine which effects impact compaction and which operates with a high impact compaction energy,

c) activating the impacting unit of the machine so that it acts on the mold and transfers the energy to the powder mixture and thereby creates a blank for the device,

d) treating the blank in one or more treatment units for producing the device from the blank.

7. The method as claimed in patent claim 6, characterized in that the blank is sintered and/or heat-treated and is subjected to chemical, electrochemical and/or mechanical treatment or machining (milling, turning, shot-peening, etc.).

8. The method as claimed in patent claim 6 or 7,

characterized in that, in step a), titanium powder of considerable purity, for example 99.99%, and relatively small particle size is mixed together with HA, for example sintered HA, which has been crushed and screened to the fraction 90-120 μm.

9. The method as claimed in patent claim 8, characterized in that the mixture consists of ca. 95% titanium powder and 5% HA powder, and the powders are mixed in the dry state, with agitation and stirring.

10. The method as claimed in patent claim 8 or 9, characterized in that the machine is controlled so as to generate an impact compaction energy of ca. 335 Nm or higher and to execute one or more impacts against the mold.

11. The method as claimed in any of claims 6-10, characterized in that the titanium particles are compressed to a substantial density, for example 98%, and in that there is substantial surrounding of the HA particles.

12. The method as claimed in any of patent claims 6-11, characterized in that the positions of the HA particles in the composite material are controlled upon mixture and application in the mold cavity of the mold, and in that the blank is machined so that HA particles are present at the surface exposed to the bone and/or tissue.

13. Use in the production of a device made of compressible bone-compatible and/or tissue-compatible powder material, for example titanium powder, and provided with a bone-growth-stimulating agent, preferably HA, characterized in that an impact-type compaction machine with a high impact compaction energy is used to compress the

powder material and said agent in powder form to give a composite material.